МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ

МІСЬКОГО ГОСПОДАРСТВА імені О. М. БЕКЕТОВА

Збірник текстів і завдань з дисципліни “Іноземна мова”

(для організації самостійної роботи студентів 1 - 2 курсів денної форми навчання напряму підготовки 6.040106 “Екологія і охорона навколишнього середовища та збалансоване природовикористання”)

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INTRODUCTION

These educational materials are designed for the ESP students of the 1st and 2nd year of studies of the speciality "Environmental Protection" to develop their knowledge and skills in English according to their profession.

This manual is based on the authentic texts from different sources concerning Environmental Protection problems. It contains the tasks for reading and translation, vocabulary tasks and tasks for self-study. The manual consists of 14 units and is expected to be covered during student's independent work.

Each unit contains:

- pre-reading activity (questions and tasks)
- an authentic text for reading, translation and discussion in class;
- comprehension exercises;
- key vocabulary according to the topic. All key words are taken from the basic text where they are typed in italics;
- exercises for memorization and mastering key vocabulary;

The manual can be recommended both for using in class and for student's self-study.

ECOLOGICAL PROBLEMS IN UKRAINE

There are a lot of problems people facing on our planet nowadays. But the most urgent one is the problem of ecology. Human activities have made environment unhealthy.

The pollution develops due to toxic wastes, produced by chemical plants, by intensive farming. Tons of smoke and gas are puffed out into the air by cars and plants. Acid rains fall out on the crops, killing creatures and animals. The most dangerous thing is radiation. It affects peoples health and causes changing of living forms, called mutation.

Now there is no country in the world which can ignore the ecological problems. To clean nature and protect it from dying many international projects have been taken.

Pollution became evident in Ukraine with industrial development in the 19thcentury. Many heavily industrialized cities of Ukraine such as Donetsk, Mariupol, Zaporizhzhya, Dnipropetrovsk, Luhansk are suffering from air and water pollution . The government together with scientists have already made a lot to help, but due to the serious economic situation, there is still a great need of financial help for these cities.

In 1986 an accident at the Chornobyl nuclear power station caused tremendous harm to the land and people of Ukraine . As a result of it many parts of Ukraine , Belarus and Russia were contaminated by the radiation. Thousands of acres of land, houses, rivers and lakes are unfit for living there. Great efforts have been made by the Ukrainian people to liquidate the effects of the disaster. It will take a very long time for people to return the land to life. Recent detailed field studies indicate that vast areas will remain unsafe for human occupancy and food production for upwards of eight thousand years. But worst of all is that many people lost their homes, relatives. They suffer from fatal diseases like cancer, significant number of deaths by radiation sickness and elevated levels of spontaneous abortions, stillbirths and birth defects, elevated rates of childhood leukemia have occurred in the affected areas. 19 years passed since then and over 14,000 children, who were born later, are ill now.

We must take care of our nature to survive in future.

Завдання до тексту:

1. Дайте відповіді на запитання:

* *What problem is the most urgent nowadays?*
* *When did pollution became evident in Ukraine?*
* *How long will land of the Chornobyl region remain unsafe?*
* *What kind of diseases do people of affected areas suffer from ?*

2. Знайдіть у тексті різні форми пасивного стану дієслова, визначте їх час.

3. Перекладіть письмово останній абзац тексту.

AIR POLLUTION

All parts of the environment are closely related to one another. A kind of pollution that chiefly harms one part of the environment may also affect others.

For example, air pollution harms the air. But rain washes pollutants out of the air and deposits them on the land and in bodies of water. Wind blows pollutants off the land and into the air. Most common forms of air pollution are smog and cigarette smoke. Most of the gases and particles come from combustion (burning) processes. The furnaces in factories, the engines in motor vehicles, and the burning of trash are the chief sources of pollution from combustion. A serious result of air pollution is its harmful effect on human health (asthma, bronchitis and pneumonia). In cities throughout the world, long periods of heavy air pollution dramatically increased illness and death rates.

Poisonous gases in the air can restrict the growth of and kill nearly all kinds of plants. Polluted air even harms concrete and steel.

Air pollutants may also affect climate. Some gases, including carbon dioxide, may cause a phenomenon called the greenhouse effect. Carbon dioxide, like glass in a greenhouse, allows sunlight to warm the earth but prevents heat from escaping back into space. The greenhouse effect could permanently raise temperatures on the earth, partially melt the polar icecaps and cause floods.

In addition, air pollutants may damage the layer of ozone in the atmosphere. The ozone layer protects animals and plants from the sun's harmful ultraviolet light.

Завдання до тексту:

1. ***Складіть 4 різних види запитань до тексту.***
2. ***Перекладіть письмово 3 останні абзаци.***
3. ***Знайдіть у тексті приклади присвійного відмінка іменника.***

Text 2:

Air Pollution

Air pollution has probably been with us since the very beginning of our existence on this planet, and even when men was not present.

At present, industrial activity is so great and fuel-powered transportation devices so numerous that air pollution of human origin is starting to produce noticeable effects on a global scale. Carbon monoxide (CO) emitted by automobile engines arises from incomplete combustion of hydrocarbons found in gasoline in which the fuel reacts with less oxygen than it is theoretically possible. It is estimated that as a result of human activity, about 260 million tons of carbon monoxide are

released into Earth's atmosphere every year. Automobile exhaust gases contain an average of 4-5 % CO.

Завдання до тексту:

1. Дайте відповідь на питання, починаючи речення зі слів:

I think (believe, consider) (so); I don't think (believe, consider) (so); I hope not; probably, certainly, of course

1) Do you think pollution began its existence when man appeared on this planet?

2) Do you think millions of tons of carbon monoxide (C0) are released into the Earth's atmosphere as a result of human activity?

3) Do you think sulphur oxides are harmless to human health and vegetation?

2. Знайдіть в тексті речення в Perfect Tense, запишіть його в питальній і заперечній формах.

NOISE POLLUTION

People everywhere have become aware of a new kind of pollution - noise pollution. The problem has been brought into sharp focus by the discovery that many teenagers have suffered from permanent hearing loss following long exposures to amplified rock music, and by public concern about the effects of sonic booms that would be caused by supersonic transports if they were put into commercial service.

Noise is usually measured in decibels. A tenfold increase in the strength of a sound adds 10 units on the decibel scale, a 100-fold increase adds 20. The human threshold of hearing is represented by zero decibels. Hearing is normal if the person perceives whispers at a distance of 6 to 7 metres.

Even a brief exposure to intense noise can cause temporary loss of hearing acuity. Permanent loss of hearing follows chronic exposure to high noise levels. Noise levels as low as 50-55 decibels may delay or interfere with sleep and result in a feeling of fatigue on awakening. There has been growing evidence that noise in the 90-decibel range may cause irreversible changes in the nervous system. These forms of damage including permanent hearing loss such as that suffered by fans of the rock music, can occur at noise levels well below those that are painful. Noise may be a factor in many stress-related diseases, such as peptic ulcer (язва шлунку) and hypertension, although present evidence is only circumstantial. In any case noise pollution is clearly a growing threat to our health and happiness.

Завдання до тексту:

1. ***Складіть питання до кожного абзацу тексту.***

2. ***Перекладіть письмово останній абзац.***
3. ***Знайдіть у тексті приклади слів, що замінюють інші слова. Вкажіть які слова вони замінюють.***

Text 2:

Прочитайте текст. Знайдіть речення, в якому автор дає свою точку зору на проблеми шуму і тиші:

Noise Pollution

If indeed silence is golden, it is also becoming as rare as gold. It seems that the progress of man includes a rising volume of noise. In every home a stereo or television will fill the rooms with sound. Between sunrise and sunset, streets and highways are a constant source of noise from cars, buses, and trucks. You can pass any factory or construction area and the roar of its machinery will make your ears ring. Music is played in every supermarket, most restaurants and many offices. Big cities of the world such as Los Angeles (California, USA), Osaka (Japan) are well-known for their noisiness.

Noise pollution is the new side effect of our technological age. Day or night, the Bound of work fills the air. It seems that the soothing effects of silence are nowhere to be found. Even the quiet of our carefully protected wilderness areas can be invaded at any moment by a passing jet.

We are learning, finally, that silence is a natural resource and must be protected by law.

Завдання до тексту:

1. Дайте відповідь на запитання:

1. Is noise pollution a serious problem everywhere?
2. What are some of the causes (sourses) of noise pollution in your city or town?
3. Is there a way to solve the problem of noise pollution in our cities? How could this be done?

2. Виразіть своє здивування або вагання ("невже", "хіба"?) по-англійськи.

Models -Day and night the sound of work fills the air.

-Does it really?

1) Silence is becoming as rare as gold.

2) Streets and highways are a constant source of noise from cars, buses and trucks,

3) Big cities of the world such as Los Angeles (USA, California) and Osaka (Japan) are well-known for their noisiness.

4) Silence is a natural resource and must be protected by law.

WATER POLLUTION

One more aspect of our ecological problems is water pollution. Some cities simply run their raw sewage directly into nearby natural waters. This is one of the worst types of water pollution.

Another type of pollution of sea and ocean water is petroleum oil, it taking place in connection with off-shore drilling operations. It should be also noted that unfortunately there is as yet no satisfactory method of overcoming the effects of oil spills, although many methods have been tried. Sea and river-going ships often pollute sea and river water with various oil products too. No less than five million tons of oil are discharged into seas and oceans each year and one ton of oil can spread over about twelve square kilometres of water surface as a fine film which prevents air-water oxygen exchange. One litre of oil makes one million litres of fresh water unfit for drinking. We must stop the pollution of our water-ways which comes from many sources: chemical waste from factories, thermal waste from power stations, domestic waste from cities and towns, and so on.

Pollution of water resources always demands a choice between which more advantageous is to purify the polluted water and use fresh water for production or create closed cycle water supplies, so the same water can be used several times. We favour the second alternative. Recycling technology demands more capital investment, but on the end it is more effective.

Завдання до тексту:

1. Find the sentence which gives the author's point of view on the water pollution problem. Do you agree with the author?

2. Tell a foreigner about water protection resources.

3. Find the correct answers to the question:

What is the text about?

a) This text is about water protection resources.

b) This text is about the water pollution.

c) This text is about the problems of ecology.

d) This text is about the main sources of water pollution.

4. Письмово перекладіть другий абзац тексту

POPULATION AND POLLUTION

Pollution is anything unwanted which humans put into the environment.

The world's human population is growing. As it does so, it needs more crops, meat, wood, fuels, and minerals. This is causing problems for other populations, and for humans as well.

Using fertilizers

To help crops grow, chemical fertilizers are often sprayed onto soil. But they can be washed into lakes and rivers, where they encourage the growth of green, plant-like algae. Microbes feeding on dead algae use up all the oxygen in the water, so fish and other organisms die.

Pesticides

Pesticides are chemicals sprayed onto crops to kill off insects and other pests. But they can build up in the bodies of birds which feed on the pests. And they can also be washed into lakes and rivers.

Cutting down forests

Huge areas of forest are being cut down for timber, or to make space for agriculture or industry. But trees supply the world with some of its oxygen. And they provide shelter for many forms of wildlife. When trees are removed, the soil is easily eroded (worn away), and large areas of ground can be turned into desert, or bog if it is wet.

Digging up land

Industry needs fuels and other materials from the ground. For example, huge amounts of limestone are needed for making concrete. And limestone is also used in the manufacture of steel and glass. But mining and quarrying damage the landscape. They can also produce huge heaps of waste materials. Some of these contain poisonous metals which can harm plants.

Fishing

Fish is an important food for millions of people. But if too many fish are taken from the sea, there are not enough left to breed. Soon, the fish die out altogether.

Crops

Farmers find it more efficient to grow single crops in huge fields. But cutting down hedges destroys the habitats for many forms of wildlife. And pests which feed on the one crop can flourish.

Air Pollution

Harmful gases

When coal, oil, and petrol are burned, the waste gases include sulphur dioxide and nitrogen oxides. Unless removed, these dissolve in rainwater to form acid rain. This corrodes steel, eats into stonework, and damages plants.

Carbon dioxide is the main gas given off when fuels burn. It traps the Sun's heat and causes global warming (the greenhouse effect).

Dust

Dust from quarries, mines, and factories can cause lung disease.

Smoke

This contains particles of soot (carbon) which can blacken buildings.

Land Pollution

Radiation

If an accident happens, radioactive waste from a nuclear power station can contaminate the air, sea, and soil.

Noise

Noisy aircraft or someone else's loud radio can be very annoying.

Litter

Some litter rots away: paper for example. But some does not rot: plastic and glass for example. Litter looks awful and it can cause injury to animals.

Water pollution

Factory waste

Poisonous chemicals are sometimes dumped into rivers or the sea.

Fertilizers and pesticides

These can get into lakes and rivers and harm wildlife.

Slurry

This farm waste is a mixture of animal droppings and urine. It is used as a fertilizer, but can pollute streams and rivers.

Oil

This sometimes spills from tankers. It kills sea-birds and marine life. And it ruins beaches.

Sewage

Sewage is often dumped at sea. It can be a health hazard.

Завдання до тексту:

1. Дайте відповідь на запитання:

a. What harmful gases are mentioned in the text?
b. What causes acid rain?
c. What damage does acid rain do?
d. Can dust cause lung disease?
e. Why does smoke blacken buildings?

2. Назвіть причини, з яких відбуваються нижче перераховані речі:

a. Using fertilizers and pesticides
b. Cutting down forests
c. Making larger fields
d. Quarrying limestone

3. Перерахуйте чим забруднюються річки.

4. Випишіть із тексту речення з дієсловами у пасивному стані та визначить їх часові форми.

5. Перекладіть 4 перші абзаци тексту.

Text: World Problems of Ecology

Until recently the planet was a large world in which human activities and the nature were in balance.

Acid rain, global warming, ozone reduction, widespread desertification and species loss: we have to face them now.

Ecology and economy are very closely connected. First economy influenced the state of our environment. Now we have to face degradation of soils, water,

atmosphere and forests. Millions of trees are dying in Germany's Black Forest and thousands of lakes in Sweden are so acidic that nothing can live in them. In Scotland farmers complain that acid rains kill their fish. Forests in Denmark, France, Northern Italy, Greece and Norway are damaged. Thousands of lakes in Canada and the USA can no longer support fish life.

The Mediterranean Sea has one of the dirtiest coastlines in the world. Ten of millions of tens of oil industrial waste, chemicals are pumped into the sea every year. It causes diseases like typhoid, dysentery, hepatitis and cholera.

The Rhone in France, the Po in Italy, the Ebro in Spain and the Nile In Egypt carry pesticides and chemical wastes. Many industries produce waste products, which can be difficult or dangerous to dispose of. Many countries have no storage facilities for the spent nuclear fuel. The search for ways to dispose of radioactive waste goes on.

In 1982 seventeen countries took part in the United Nations environmental programme. The World Commission on Environment and Development, headed by the Prime Minister of Norway, was set up in 1983 by the United Nations. Its aim was to examine the environment and development problems on the planet and to formulate realistic proposals to solve them.

Now some chemicals are banned and some must be controlled. In several countries there is frequent analysis of the water around the coasts. The time has come for the governments and their people to take responsibility for the policies that cause the environmental damage.

Слова і словосполучення для запам'ятання

Acid rain – кислотний дощ
global warming – глобальне потепління
ozone reduction – зменшення озонового шару
species – види
soil – ґрунт
damage – пошкодження (to cause damage - завдавати шкоди)
support – підтримка
to complain – скаржитися
industrial wastes – промислові відходи
disease – хвороба
spent nuclear fuel – відпрацьоване ядерне паливо
storage facilities – склади
to ban – відміняти, скасовувати

Завдання до тексту:

1. Прочитайте текст та дайте відповіді на запитання:

* *What ecological problems do we have to face now?*
* *Why do farmers in Scotland complain?*
* *Does the Mediterranean Sea have one of the dirtiest coastlines in the world?*
* *Do many countries have storage facilities for the spent nuclear fuel?*
* *When was the World Commission on Environment and Development, headed by the Prime Minister of Norway, set up?*

2. Знайдіть в тексті назви хвороб, вивчіть як вони вимовляються по-англійськи, перекладіть їх назви на українську мову.

3. Перекладіть на українську мову 3 перші абзаци тексту.

4. Знайдіть в двох останніх абзацах тексту приклади речень в Passive Voice. Визначте час дієслів в цих реченнях.

The Changed Face of Sheffield

Sheffield is one of England's largest cities. It is an industrial city, a steel-making centre of the country with lots of plants and factories in it. For more than a century it was a smoky and dirty city, and the view of chimneys releasing smoke and dirt was very characteristic of it.

Today, though the city is still proud to be one of the greatest industrial centres, the environment is entirely different. This is largely due to the city's clean air programme, which has made Sheffield smokeless, and probably one of the cleanest industrial cities in Europe.

The city made great efforts to overcome the problem of pollution when it began the clean air campaign. Smoke Control Orders were introduced into various parts of the city. The factories and plants were redesigned and modified. Modern technology enabled the city to reduce the amount of the waste in the air, to trap harmful substances released into the air with smoke and to purify them by special filters. Massive redevelopment, widescale tree planting and rigid smoke control have changed the whole environment. Gone are the smoke and the dirt that once blackened the atmosphere.

For city outdoor displays, a quarter of a million tulips are imported from Holland each year. Until recently only coloured tulips were ordered — the darker, the better. Today white tulips are also included and remain white during the three or four weeks in which their lovely blooms bring an additional charm to the centre of town.

Слова і словосполучення для запам’ятання

Chimney – димохід, труба
release – виділяти, випускати
entirely – повністю, зовсім
effort – зусилля
to reduce – знижати
to trap harmful substances – затримувати шкідливі речовини
to purify – очищати
rigid control – жорсткий (суворий) контроль
to remain – залишатися
bloom – цвіт
additional – додатковий
enable – дозволяти, давати змогу

Завдання до тексту:

1. Перерахуйте які вживаються заходи для покращення охорони навколишнього середовища в Шеффілді.

2. В нижчеподаних реченнях розглядаються шляхи вирішення екологічних проблем. Перекладіть ці речення на українську мову.

1. The factories and plants must be removed from cities.
2. Green zones must be created.
3. The greenery must be protected and increased.
4. Pollution control systems must be introduced.
5. Purifying systems for cleaning and trapping harmful substances must be widely used.
6. Noise must be reduced.

3. Знайдіть прикметники і прислівники, утворені за допомогою суфіксації в абзаці 2. Перекладіть їх на українську мову.

4. Перекладіть статтю з Конституції України на українську мову.

In the interests of the present and future generations, the necessary steps are taken to protect and make scientific rational use of the land and its mineral and water resources and the plant and animal kingdom, to preserve the purity of air and water, ensure reproduction of natural wealth and improve the human environment. Citizens of Ukraine are obliged to protect nature and conserve its riches.

5. Перекладіть на українську мову наступні словосполучення.

to realize ecological policy, to treat environmental protection as a matter of vital importance; to light all kinds of pollution; to keep under constant control; to carry out research work; to conserve forests; to improve technology; to develop new technology; to spend huge sums and resources to purify water (air); to find new ways to use waste as raw material; to protect and increase the greenery; to broaden ecological education.

Save Our Planet for Future Generations

Future generations have the same right as we have to clean air, clear water and green forests. This right is under threat. The danger to the environment posed by the uncontrolled exploitation of the earth's natural resources is now universally recognized. This is why the European Community and governments around the world have accepted the principle of sustainable development. The aim is to match our future production and consumption patterns to what our planet and its environment can sustain in the long term.

The phenomenon of global warming, the depletion of the earth's protective ozone layer and the wanton destruction of tropical forests are just three instances where the limits of sustainability have been exceeded.

The Community has adopted a programme which is proactive rather than reactive. After two decades of mainly corrective action, which was not always successful, the Community now focuses on partnership and shared responsibility to prevent and, where possible, to reverse environmental degradation. It is seeking, from a coalition of government, industry and consumers, a commitment to conserve resources, recycle used products, dispose of waste safely and develop environmentally-friendly energy sources. In this way, we can continue economic and social development without compromising the needs of our children's children.

Завдання до тексту:

1. ***Складіть 3 запитання до тексту.***
2. ***Перекладіть письмово 2 перші абзаци тексту.***
3. ***Знайдіть у тексті приклади присвійного відмінка іменника та модальних дієслів. Випишіть та перекладіть ці речення.***
4. ***Випишіть з останнього абзацу тексту всі прикметники, підкресліть в них словотвірні суфікси.***

ENVIRONMENTAL PROTECTION

The scientific and technological progress of the twentieth century resulted in widespread mechanisation, computerised management, spaceships, atomic power stations, pipelines, new roads and highways.

But it can not be denied that the price for rapid industrial development is very high: natural resources are exhausted, the ecological balance of the planet is disturbed; some species of flora and fauna disappear; city and industry waters, chemicals and fertilisers are endangering lakes, rivers and ponds. Big cities have a problem with air pollution: the "'Killer Smog" caused some 3500-4000 deaths in London in December 1952. Progress can be blamed for all these environmental problems.

In recent years the pollution problems have received great publicity. The Environmental movement associated with no political party has gained widespread trust and support. Environmental activists stress that the problem is caused by industrial pollution and the automobile. Long-established environmental groups warn that acid rains threaten many forests. Many people started to realise that to keep air and water clean, strict pollution control is necessary.

The protection of natural resources is becoming a political programme in every country. Numerous antipollution acts passed in different countries led to considerable improvements in environment. In many countries purifying systems for treatment of industrial waters have been installed, measures have been taken to protect rivers and seas from oil waters. Wildlife reservation models of undisturbed nature are being developed in some parts of the world.

But the environmental problems have grown beyond the concern of a single country. Their solution requires the co-operation of all nations.

Завдання до тексту:

1. Дайте відповідь на запитання:

1. What are advantages of industrial development?
2. What are disadvantages of industrial development?
3. What do Environmental activists do?
4. What has been done in many countries to improve the environment?
5. Why do the environmental problems require the co-operation of all nations?

2. Знайдіть випадки вживання модальних дієслів і пасивного стану дієслів у 2 абзаці.

3. Випишіть з 1 абзацу прикметники та вкажіть способи їх словотворення.

4. Зробіть письмовий переклад двох останніх абзаців тексту.

CITY GARBAGE PROBLEMS AND SOLUTIONS

Слова і словосполучення для запам'ятання

garbage – сміття to get rid of – позбутися antiquity – давнина waste disposal – видалення відходів to acquire – набувати urbanity – міське населення city garbage dumps – міські смітники	to saturate – насичувати decomposition products – продукти розпаду organic origin – органічного походження to upset – розладнувати noxious substances – шкідливі речовини to ban – відкладати, затримувати subsequently - поступово

Almost everything that is produced for human needs with time becomes garbage. All sorts of methods have been tried to get rid of garbage. It has been buried, removed as far as possible from population centres. Nevertheless, even in antiquity Rome lost the "battle". Garbage filled its Forum.

In our time the problem of domestic waste disposal has acquired a global nature. Cities with populations of several million form Everest of garbage. Every urbanity throws away nearly a tone of unwanted things annually. They pile in the city garbage dumps which take up hundreds of hectares of land, putting it out of useful circulation. Moreover, all such dumps are unsanitary. The mountains of garbage attract a lot of rodents and birds, which spread decomposition products. Rain water becomes saturated with noxious substances which subsequently penetrate into underground waters and poison them. Not only grass does not grow on the sites of former dumps, but construction work and the laying of supply lines in these areas have to be banned for 50 to 100 years.

Many useful elements, including those of organic origin are lost in garbage dumps. While taking them from nature and in enormous quantities, man gives nothing back to it. On the contrary, he keeps on taking in order to turn out new consumer goods. Eventually, this can seriously upset the ecological balance.

The most effective method of waste disposal is to process it industrially.

Experts have developed many production processes which make it possible to reconvert mountains of garbage into substances that are of crucial importance to industry and agriculture.

Завдання до тексту:

1. Дайте відповідь на запитання:

* *Why did* Rome loose the "battle" with garbage*?*
* *What do t*he mountains of garbage attract*?*
* *What does r*ain water become saturated with*?*
* *What* is the most effective method of waste disposal*?*

2. Знайдіть у тексті складні речення та визначте їх тип.

3. Перекладіть письмово 2й і 3й абзаци тексту.

Text: Chornobyl Nuclear Accident .

Слова для запам'ятання

To occur - траплятися nuclear reactor explosion – вибух ядерного реактора Contamination – забруднення To affect – діяти на, вражати To exceed – перевищувати	stillbirth - мертвонароджений To claim – стверджувати Elimination - знищення threat - загроза maintenance – утримання occupancy – заселення

The 26th of April is a special day for the people living in Ukraine and regions situated not far from it. On that day in 1986 a horrible accident occured at the Chornobyl nuclear station. There was a nuclear reactor explosion which had far reaching consequences.

Contamination by various radioactive isotopes, such as caesium-137, iodine-131, strontium-90, plutonium-239, and plutonium-240, from the Chornobyl nuclear accident have affected the air, land, and water of Ukraine and vast areas beyond it. Recorded but unreported radiation levels in Kyiv a few days after the accident exceeded the maximum allowable levels by a hundredfold.

Press reported claim that significant numbers of deaths by radiation sickness, elevated levels of stillbirth and birth defects and highly elevated rates of childhood leukemia had occurred in the affected areas. Those claims and other concerns are being researched by a host of scientists and medical professionals from Ukraine and other countries. Recent detailed field studies indicated that significant areas of agricultural and forest lands of Ukraine, Belarus, and Russia would remain unsafe for human occupancy and food production for upwards of eight thousand years. Nevertheless, thousands of people who were evacuated after the accident have returned to live and farm in these highly contaminated regions. Thus, the Chornobyl region, in fact, has become something of a living laboratory for the study of nuclear contamination.

A number of foreign countries offered specialized medical equipment and drugs for biological elimination of isotopes of different chemical elements from human body. Later on thousands of children were taken to other republics of the former USSR and abroad for corresponding medical treatment.

Such accidents like that in Chornobyl must never be repeated again, because the very existence of millions of people maybe under a threat. The safe maintenance of nuclear power stations depends on proper work and sufficient technical knowledge of every worker and engineer.

Завдання до тексту:

1. ***Укажіть усі випадки суфіксації прикметників в абзаці 2.***
2. ***Складіть 3 спеціальних питання до тексту та дайте на них відповіді.***
3. ***Знайдіть речення з правилом узгодження часів в абзаці 3, перекладіть їх українською мовою.***
4. ***Перекладіть 2 останніх абзаци тексту рідною мовою.***

THE DISTRUCTION OF THE RAINFORESTS

Завдання перед читанням тексту:

Розгляньте наступні запитання і постарайтеся відповісти на них.

Прочитайте текст і порівняйте свої відповіді з твердженнями тексту.

1. Where are the rainforests in the world?
2. Where are the largest rainforests found?
3. If the present trend of destroying the rainforests continues, how long do you think it will take to destroy them all?

The tropical rainforests surround the equator of the earth like a belt. They occupy a total area of about nine million square kilometers. The largest rainforests are in South America, particularly the Amazon forest in Brazil which stretches to Peru, Ecuador, Colombia, Venezuela and French Guyana. Smaller forests are found in tropical Asia and central Africa. The rainforests are rapidly being cut down. Nobody knows exactly how much is cut down every year. Estimates vary between 100,000 and 400,000 square kilometers. Brazil alone lost about 48,000 square kilometers of rainforest in 1990. The tropical forests of West Africa (Nigeria and the Ivory Coast) have almost disappeared over the past 40 years. According to the most conservative estimate, all the rainforests in the world will be gone in less than a century unless the rate of felling slows down. A more realistic estimate is 30 years.

Why are people cutting down the rainforests? Between 10 and 30 percent of the trees are sold as logs to the timber trade. They are used in rich countries to make luxury furniture, doors and window frames. But much of the wood is not made into durable products. It is made into cheap, throwaway goods.

The largest cause of the destruction of rainforests is probably the creation of grazing land to feed cattle. The growth of the fast food industry in the 1970s created a demand for cheap beef for making hamburgers. Countries soon saw the profit they could make from cattle farming and began to cut down their own rainforests. According to one estimate, half of the world's rainforests have already been cut down to make space for the meal industry, and approximately half a metric ton of vegetation is destroyed for every hamburger eaten.

Why do we need to conserve the rainforests? First, because the rainforests are the lungs of the world. Second, the rainforests are the world's most important means of storing water. The trees soak up water in the rainy season and slowly release it into the ground and rivers. Third, the rainforests control the climate. Seventy-five percent of the rain that falls on the tropical rainforests enters the trees from the soil by transpiration and then evaporates from the surface of the leaves. Fourth, the rainforests are a reservoir of micronutrients. Tropical rainforests usually grow on poor soil. Most of the essential nutrients are stored not in the soil but within the trees themselves. Fifth, the rainforests, and the ecosystems that they support, are an important source of raw materials for many different industries. They supply us with hundreds of useful products — from rubber to peanuts. One very important benefit is the supply of medicinal plants. One last—and very important—reason for conserving the rainforests is that they are the home of several million people, who still live in primitive tribal societies within the forests. We have both a moral and a scientific duty to protect the homelands of these unique and fascinating societies.

Завдання до тексту:

1. ***Дайте відповідь на запитання до тексту.***

   How many reasons does the author give for conserving the rainforests?

2. ***Запишіть речення в тому порядку, в якому вони зустрічаються в тексті.***

   1 Moreover, one other benefit relates to the supply of many raw materials, products and medicinal plants.

   2 Finally, the homes of millions of people are to be found in the rainforests and this homeland should be protected for moral and scientific reasons.

   3 They act as the lungs and watersheds of the world, they control the climate and are a reservoir of micronutrients.

   4 There are a number of reasons why the rainforests should be conserved.

3. *Перекладіть письмово 2 і 3 абзаци тексту.*

4. *Знайдіть у 2 абзаці тексту приклади дієприкметників (Participle I and II).*

Water.

One of the most urgent environmental problems in the world today is the shortage of clean water. Table 1 shows the causes of the water shortage. There are large differences in per capita water consumption between different countries. A comfortable lifestyle (with flush toilets, washing machines and public swimming pools) uses a lot of water. The average Kenyan uses five liters of water a day; the average American uses 1,000. More and more people in the world are adopting a Western lifestyle. So even if population growth stops, the water shortage will get worse.

Access to clean drinking water is a basic human right. But acid rain, industrial pollution and sewage dumping have made many sources of water undrinkable. Lakes, reservoirs and even entire seas have become vast pools of poison. Lake Baikal in Russia is one of the largest, lakes in the world. It is also one of the most beautiful. The local people call it the Holy Sea. It contains a rich variety of animals and plants, including 1,300 rare species that do not exist anywhere else in the world. But they are being destroyed by the massive volumes of industrial effluent which pour into the lake every day.

The Mediterranean Sea occupies 1 percent of the world's water surface. But it is the dumping-ground for 50 percent of all marine pollution. Sixteen countries border on the Mediterranean. Almost all of them regularly dump shiploads of industrial waste a few miles off shore. Sewage effluents pour into the sea only meters from popular bathing beaches. In 1975, the United Nations Environment Program brought together these 16 countries and drew up the Mediterranean Action Plan. The countries agreed to stop dumping from ships and to reduce sewage pollution. Few, if any, of them have kept their word. In the 1950s, Japanese factories dumped waste containing mercury into the sea at Minamata Bay. Shellfish became contaminated with this very toxic heavy metal. Over 2,000 people developed brain damage and 40 of them died. These tragic examples should teach us that the ocean is neither a garbage can nor a toilet.

Sewage is a rich source of micronutrients, which are essential for the growth of plants and animals. Sewage sludge, and fertilizers washed off the land, increase the concentration of micronutrients (particularly nitrates) in the sea to dangerous levels. Plankton (tiny plants that float near the surface of the water) becomes so numerous that they cut out the light to deeper parts of the sea. This endangers plants that grow on the sea bed, which need the sun's light for photosynthesis. Seaweed is also very sensitive to changes in the level of micronutrients in coastal waters. One or two

species of algae (seaweed) can outgrow all the other species. Overgrowth of algae can cause slimy, smelly, ugly deposits on beaches. Occasionally algae produce poisonous toxins that can kill fish or cause skin rashes in swimmers.

We condemn deliberate pollution of the water supply by industrial waste and sewage dumping. But we are usually impressed by "developments" such as huge dams, dikes and irrigation schemes. These are often magnificent feats of civil engineering. They cost a lot of money and use modern materials and equipment. We often assume that the people who plan and build these systems know what effect they will have on the environment. In fact, many dams and irrigation schemes have been environmental disasters. Three quarters of the world's water is used to irrigate crops, so inefficient or extravagant irrigation schemes can cripple a region's water supply. The Aral Sea in Russia was once the fourth-biggest lake in the world. It is now less than half the size it was in 1965. Badly-planned irrigation schemes have taken water from the rivers that fed the Aral Sea. In addition, overuse of pesticides on the cotton crops nearby has polluted the water with toxic chemicals.

"Development" projects can also make soil erosion worse. Forests and grasslands in a river valley soak up water after heavy rains and slowly release it back into streams and rivers. This prevents the valley from becoming dry and dusty in the months without rain. In addition vegetation also prevents erosion by holding the particles of soil together. If there is no vegetation, the soil crumbles away and is washed into the rivers as silt. Rivers become clogged with sediment. Lakes change from clear, blue pools into thick, muddy puddles. The destruction of rainforests, and intensive farming practices (such as heavy grazing of cattle and excessive plowing with powerful machines) both increase soil erosion. Because of deforestation and modem farming methods, the sediment load of the Yellow River in China is 1.6 billion metric tons per year, and that of the Ganges is 1.455 billion metric tons. The traditional farming methods used by primitive communities may seem inefficient, but the sediment loss from these methods is tiny.

The best things in life are free. But because water is free, we often take it for granted. A few years ago, people thought that the supply of clean water in the world was limitless. Today-many water supplies have been ruined by pollution and sewage. Others have dried up because we have diverted the water for hydroelectricity or badly-planned irrigation projects. The destruction of forests and grasslands has increased soil erosion. Clean water is now scarce, and we are at last beginning to respect this precious resource. Like other environmental resources, the clean water that remains is the property of our children and grandchildren. For their sake, we must fight to protect what is left of the water supply.

Завдання до тексту:

1. Складіть 1 запитання до кожного абзацу тексту.

2. Перекладіть письмово останній абзац тексту.

3. Передивіться 1 абзац тексту і виберіть твердження, яке найточніше передає його зміст.

a) If the population falls, there will be enough water.

b) It is clear that the water shortage will get worse.

c) It is not really clear whether the water shortage will get worse.

d) If the population stops growing, there will be no water problem.

ROAD TO NOWHERE

Слова і словосполучення для запам'ятання

ladder - драбина	luddites - іст. лудділи
climb - підніматися	stage - інсценувати
take for granted - вважати само собоюзрозумілим	trial - судовий розгляд
congested - перенаселений	mock court - уявний суд
run out - закінчуватися	guilty - винний
hyper - надмірний, великий	crime - злочин
crowded - переповнений	smash - розбивати
solve - розв' язувати	cause - спричиняти
unspoilt - незіпсований	unemployment - безробіття
attractive - привабливий	livelihood - засоби для існування
surgery - хірургічна операція	typewriter - друкарська машинка
high security area - максимально безпечна територія	spread - поширювати
civil rights - громадянські права	supporter - прихильник
rage - гнів	disrupt - зривати
avoid - уникнути	argue - доводити
	affect - впливати
	solution - розв 'язання

We say we can't imagine life without cars or aeroplanes. Can technology really improve our lives? Some people believe that the environmental price is too high and it's time to think again.

Future Shock

There are more than 5 billion people in the world. The majority of them live in developing countries. Every three or four years, the number of people in China who own cars doubles. The Chinese government believes that eventually, every family in China should own a car. Although this sounds like progress, what effect would another 350 million cars have "on the world's environment?

Ladder of Wealth

Imagine a world ladder. Rich countries have already climbed to the top. People living in these countries take modern technology for granted. Third World countries are still climbing up the ladder but there's a problem. If everyone gets to the top of the ladder, there will be ten times more cars in the world- A world like this would be polluted, noisy and congested.

Good Technology?

Scientists often claim that technology can help to make the world a better place. In the future, alternative fuels might allow us to travel without running out of energy. We could have 'Hypercars' with clever electronics to solve the problems of crowded roads. We wouldn't have to travel so much, people could work from home using computers. However, many people are wondering what we should do if technology can't solve our problems.

A Horrible Thought

What sort of world will we live in if things continue as they are? No one knows for sure. Perhaps there would be no more wild or 'unspoilt places'. Cities would grow and grow, turning the world into an industrialised monster. Street life might disappear, because cities would be designed for cars, not people. The gap between the rich and the poor would increase. Rich people would live longer with the aid of medical technology and look more attractive through the use of cosmetic surgery. But they'd have to live in high-security areas. Police would use computers to keep detailed records on every citizen. Civil rights and democracy might be under threat.

Rage Against The Machine

How can we avoid a world like this? This summer a group of British activists called The New Luddites decided to stage a 'car trial'. A mock court decided that the car was guilty of crimes against the planet.

Who Are The New Luddites?

The New Luddites (or NEDs) take their name from a group of British workers who were hanged in 1812 for smashing up machines in their factories. At that time, new technology was causing mass unemployment. A man called Ned Ludd was the leader of the group. The word 'luddite' now means someone who is against progress and new technology. According to New Luddite Jim Thomas, "the Luddites weren't against all technology, just against the machines that threatened their livelihoods and their environment." Many NEDs use typewriters instead of word processors and grow their own organic vegetables. Perhaps the most extreme NED was the Unabomber, who planted bombs in US Universities because he hated modern society and technology.

Back To The Future?

The New Luddites have an anonymous British leader (known only as Ned). He claims that, "the government has made it clear that the aim for developing new technology is wealth creation.,."

So what's the answer? Ned has been spreading his ideas and now has over 150 British supporters, including green activists, scientists and academics. As well as the 'car trial' they've been disrupting scientific conferences by asking 'difficult questions'. Ned told reporters, "We know the public is extremely unhappy about decisions affecting their lives being left to the 'experts' and scientists." Technology could play an important role in improving our future but New Luddites like Ned argue that at the moment, modern technology is part of the problem, not the solution.

Only time will tell.

Завдання до тексту:

1. *Складіть 5 правдивих тверджень по тексту.*
2. *Перекладіть письмово абзац **A Horrible Thought**.*
3. *Знайдіть в абзаці **Good Technology?** приклади інфінітивів дієслів, поясніть після яких слів інфінітив вживається без частки **to**.*

Supplementary texts for reading

Text 1

Many centuries ago people lived in harmony with nature because industry was not much developed. There was no ecological problem until people built lots of plants and factories which sent wastes into the air, water and land where they didn't disappear but lasted forever in one form or another. Nowadays people live only according to their wants and requirements, they ignore the laws of nature. That's why today the contradictions between man and nature are dramatic.
People are slowly destroying the nature environment around them. Today we are anxious about the state of the air we breathe because every year world industry throws out into atmosphere about 1 000 million tons of dust, smoke and other harmful substances and people of many cities suffer from smog.

Speaking about atmosphere we should mention ozone holes which are result of air pollution and their increase can lead to the destruction of the whole great chain of life of our planet. The pollution of the air, oceans, seas, rivers and lakes and the destruction of the ozone layer could lead our planet to a global catastrophe. But the most terrible catastrophe of our age is the Chernobyl disaster which has resulted not only in atomic explosion but has brought death to 300 thousands hectares of farm lands and has affected the lives of millions of people.
The Earth is our home that's why we must take measures to fight land pollution and keep our environment clean; we must plant trees and flowers and take care of animals, we must not throw our wastes into the rivers.
In many countries environmental protection organizations such as "Green Peace", "Friend of the Earth", "World Wild Life Fund" are set up which try to put pressure upon the governments that don't care for ecology in their countries. The humankind will be able to survive only if we all realize that environmental protection is our universal concern.

Text 2

People have always polluted their surroundings. But until now pollution was not such a serious problem. People lived in uncrowned rural areas and did not have pollution — causing machines. With the development of crowded industrial cities which put huge amounts of pollutants into small areas, the problem has become more important.

Automobiles and other new inventions make pollution steadily worse. Since the late 1960's people have become alarmed with the danger of pollution.

Air, water, and soil are necessary for existence of all living things. But polluted air can cause illness, and even death. Polluted water kills fish and other marine life. On polluted soil, food can not be grown. In addition environmental pollution spoils the natural beauty of our planet.

Pollution is as complicated as serious problem. Automobiles are polluting the air but they provide transportation for the people. Factories pollute the air and the

water but they provide jobs for people and produce necessary goods. Fertilizers and pesticides are important for growing crops but they can ruin soil.

Thus, people would have to stop using many useful things if they wanted to end pollution immediately. Most people do not want that of course. But pollution can be reduced gradually.

Scientists and engineers can find the ways to reduce pollution from automobiles and factories. Government can pass the laws that would make enterprises take measures for reducing of pollution. Individuals and groups of people can work together to persuade enterprises to stop polluting activities.

Text 3

Pollution became a popular issue after World War II, due to radioactive fallout from atomic warfare and testing. Then a non-nuclear event, The Great Smog of 1952 in London, killed at least 4000 people. This prompted some of the first major modern environmental legislation, The Clean Air Act of 1956.

Pollution began to draw major public attention in the United States between the mid-1950s and early 1970s, when Congress passed the Noise Control Act, the Clean Air Act, the Clean Water Act and the National Environmental Policy Act.

Severe incidents of pollution helped increase consciousness. PCB dumping in the Hudson River resulted in a ban by the EPA on consumption of its fish in 1974. Long-term dioxin contamination at Love Canal starting in 1947 became a national news story in 1978 and led to the Superfund legislation of 1980. Legal proceedings in the 1990s helped bring to light hexavalent chromium releases in California—the champions of whose victims became famous. The pollution of industrial land gave rise to the name brownfield, a term now common in city planning.

The development of nuclear science introduced radioactive contamination, which can remain lethally radioactive for hundreds of thousands of years. Lake Karachay, named by the Worldwatch Institute as the "most polluted spot" on earth, served as a disposal site for the Soviet Union throughout the 1950s and 1960s. Second place may go to the area of Chelyabinsk U.S.S.R. as the "Most polluted place on the planet".

Nuclear weapons continued to be tested in the Cold War, sometimes near inhabited areas, especially in the earlier stages of their development. The toll on the worst-affected populations and the growth since then in understanding about the critical threat to human health posed by radioactivity has also been a prohibitive complication associated with nuclear power. Though extreme care is practiced in that industry, the potential for disaster suggested by incidents such as those at Three Mile Island and Chernobyl pose a lingering specter of public mistrust. One legacy of nuclear testing before most forms were banned has been significantly raised levels ofbackground radiation

International catastrophes such as the wreck of the Amoco Cadiz oil tanker off the coast of Brittany in 1978 and the Bhopal disaster in 1984 have demonstrated the universality of such events and the scale on which efforts to address them needed to engage. The borderless nature of atmosphere and oceans inevitably resulted in the

implication of pollution on a planetary level with the issue of global warming. Most recently the term persistent organic pollutant (POP) has come to describe a group of chemicals such as PBDEs and PFCs among others. Though their effects remain somewhat less well understood owing to a lack of experimental data, they have been detected in various ecological habitats far removed from industrial activity such as the Arctic, demonstrating diffusion and bioaccumulation after only a relatively brief period of widespread use.

A much more recently discovered problem is the Great Pacific Garbage Patch, a huge concentration of plastics, chemical sludge and other debris which has been collected into a large area of the Pacific Ocean by the North Pacific Gyre. This is a less well known pollution problem than the others described above, but nonetheless has multiple and serious consequences such as increasing wildlife mortality, the spread of invasive species and human ingestion of toxic chemicals. Organizations such as 5 Gyres have researched the pollution and, along with artists like Marina DeBris, are working toward publicizing the issue.

Growing evidence of local and global pollution and an increasingly informed public over time have given rise to environmentalism and the environmental movement, which generally seek to limit human impact on the environment.

Text 4

The major forms of pollution are listed below along with the particular contaminant relevant to each of them:

- Air pollution: the release of chemicals and particulates into the atmosphere. Common gaseous pollutants include carbon monoxide, sulfur dioxide, chlorofluorocarbons (CFCs) and nitrogen oxides produced by industry and motor vehicles. Photochemical ozone and smog are created as nitrogen oxides and hydrocarbons react to sunlight. Particulate matter, or fine dust is characterized by their micrometre size PM_{10} to $PM_{2.5}$.

- Light pollution: includes light trespass, over-illumination and astronomical interference.
- Littering: the criminal throwing of inappropriate man-made objects, unremoved, onto public and private properties.
- Noise pollution: which encompasses roadway noise, aircraft noise, industrial noise as well as high-intensity sonar.
- Soil contamination occurs when chemicals are released by spill or underground leakage. Among the most significant soil contaminants are hydrocarbons, heavy metals, MTBE, herbicides, pesticides and chlorinated hydrocarbons.
- Radioactive contamination, resulting from 20th century activities in atomic physics, such as nuclear power generation and nuclear weapons research, manufacture and deployment.
- Thermal pollution, is a temperature change in natural water bodies caused by human influence, such as use of water as coolant in a power plant.

- Visual pollution, which can refer to the presence of overhead power lines, motorway billboards, scarred landforms (as from strip mining), open storage of trash, municipal solid waste or space debris.
- Water pollution, by the discharge of wastewater from commercial and industrial waste (intentionally or through spills) into surface waters; discharges of untreated domestic sewage, and chemical contaminants, such as chlorine, from treated sewage; release of waste and contaminants into surface runoff flowing to surface waters (including urban runoff and agricultural runoff, which may contain chemical fertilizers and pesticides); waste disposal and leaching into groundwater; eutrophication and littering.

Text 5

Water pollution

Water pollution is a major global problem which requires ongoing evaluation and revision of water resource policy at all levels (international down to individual aquifers and wells). It has been suggested that it is the leading worldwide cause of deaths and diseases, and that it accounts for the deaths of more than 14,000 people daily. An estimated of 580 people in India die of water pollution related illness every day. Around 90% the water in the cities of China is polluted, and as of 2007, half a billion Chinese had no access to safe drinking water. In addition to the acute problems of water pollution in developing countries, developed countries continue to struggle with pollution problems as well. In the most recent national report on water quality in the United States, 45 percent of assessed stream miles, 47% of assessed lake acres, and 32 percent of assessed bays and estuarine square miles were classified as polluted. The head of Chinas national development agency in 2007 said 1/4th the length of China's seven main rivers were so poisoned the water harmed the skin.

Water is typically referred to as polluted when it is impaired by anthropogenic contaminants and either does not support a human use, such as drinking water, or undergoes a marked shift in its ability to support its constituent biotic communities, such as fish. Natural phenomena such as volcanoes, algae blooms, storms, and earthquakes also cause major changes in water quality and the ecological status of water.

Causes of Water Pollution

The specific contaminants leading to pollution in water include a wide spectrum of chemicals, pathogens, and physical or sensory changes such as elevated temperature and discoloration. While many of the chemicals and substances that are regulated may be naturally occurring (calcium, sodium, iron, manganese, etc.) the concentration is often the key in determining what is a natural component of water, and what is a contaminant. High concentrations of naturally occurring substances can have negative impacts on aquatic flora and fauna.

Oxygen-depleting substances may be natural materials, such as plant matter (e.g. leaves and grass) as well as man-made chemicals. Other natural and anthropogenic

substances may cause turbidity (cloudiness) which blocks light and disrupts plant growth, and clogs the gills of some fish species.

Many of the chemical substances are toxic. Pathogens can produce waterborne diseases in either human or animal hosts. Alteration of water's physical chemistry includes acidity (change in pH), electrical conductivity, temperature, and eutrophication. Eutrophication is an increase in the concentration of chemical nutrients in an ecosystem to an extent that increases in the primary productivity of the ecosystem. Depending on the degree of eutrophication, subsequent negative environmental effects such as anoxia (oxygen depletion) and severe reductions in water quality may occur, affecting fish and other animal populations.

Text 6

Transport and Chemical Reactions of Water Pollutants

Most water pollutants are eventually carried by rivers into the oceans. In some areas of the world the influence can be traced hundred miles from the mouth by studies using hydrology transport models. Advanced computer models such as SWMM or the DSSAM Model have been used in many locations worldwide to examine the fate of pollutants in aquatic systems. Indicator filter feeding species such as copepods have also been used to study pollutant fates in the New York Bight, for example. The highest toxin loads are not directly at the mouth of the Hudson River, but 100 kilometers south, since several days are required for incorporation into planktonic tissue. The Hudson discharge flows south along the coast due to coriolis force. Further south then are areas of oxygen depletion, caused by chemicals using up oxygen and by algae blooms, caused by excess nutrients from algal cell death and decomposition. Fish and shellfish kills have been reported, because toxins climb the food chain after small fish consume copepods, then large fish eat smaller fish, etc. Each successive step up the food chain causes a stepwise concentration of pollutants such as heavy metals (e.g. mercury) and persistent organic pollutants such as DDT. This is known as biomagnification, which is occasionally used interchangeably with bioaccumulation.

Large gyres (vortexes) in the oceans trap floating plastic debris. The North Pacific Gyre for example has collected the so-called "Great Pacific Garbage Patch" that is now estimated at 100 times the size of Texas. Plastic debris can absorb toxic chemicals from ocean pollution; potentially poisoning anything that eats it. Many of these long-lasting pieces wind up in the stomachs of marine birds and animals. This results in obstruction of digestive pathways which leads to reduced appetite or even starvation. Many chemicals undergo reactive decay or chemically change especially over long periods of time in groundwater reservoirs. A noteworthy class of such chemicals is the chlorinated hydrocarbons such as trichloroethylene (used in industrial metal degreasing and electronics manufacturing) and tetrachloroethylene used in the dry cleaning industry (note latest advances in liquid carbon dioxide in dry cleaning that avoids all use of chemicals). Both of these chemicals, which are carcinogens themselves, undergo partial decomposition reactions, leading to new hazardous chemicals (including dichloroethylene and vinyl chloride). Groundwater

pollution is much more difficult to abate than surface pollution because groundwater can move great distances through unseen aquifers. Non-porous aquifers such as clays partially purify water of bacteria by simple filtration (adsorption and absorption), dilution, and, in some cases, chemical reactions and biological activity: however, in some cases, the pollutants merely transform to soil contaminants. Groundwater that moves through cracks and caverns is not filtered and can be transported as easily as surface water. In fact, this can be aggravated by the human tendency to use natural sinkholes as dumps in areas of Karst topography. There are a variety of secondary effects stemming not from the original pollutant, but a derivative condition. An example is silt-bearing surface runoff, which can inhibit the penetration of sunlight through the water column, hampering photosynthesis in aquatic plants.

Text 7

Air pollution is the introduction of particulates, biological molecules, or other harmful materials into the Earth's atmosphere, possibly causing disease, death to humans, damage to other living organisms such as food crops, or the natural or built environment.

The atmosphere is a complex natural gaseous system that is essential to support life on planet Earth. Stratospheric ozone depletion due to air pollution has long been recognized as a threat to human health as well as to the Earth's ecosystems.

Indoor air pollution and urban air quality are listed as two of the world's worst toxic pollution problems in the 2008 Blacksmith Institute World's Worst Polluted Places report.[1] According to the 2014 WHO report, in 2012 the air pollution caused the deaths of around 7 million people worldwide.

An air pollutant is a substance in the air that can have adverse effects on humans and the ecosystem. The substance can be solid particles, liquid droplets, or gases. A pollutant can be of natural origin or man-made. Pollutants are classified as primary or secondary. Primary pollutants are usually produced from a process, such as ash from a volcanic eruption. Other examples include carbon monoxide gas from motor vehicle exhaust, or the sulfur dioxide released from factories. Secondary pollutants are not emitted directly. Rather, they form in the air when primary pollutants react or interact. Ground level ozone is a prominent example of a secondary pollutant. Some pollutants may be both primary and secondary: they are both emitted directly and formed from other primary pollutants.

Major primary pollutants produced by human activity include:

- Sulphur oxides (SO_x) - particularly sulfur dioxide, a chemical compound with the formula SO_2. SO_2 is produced by volcanoes and in various industrial processes. Coal and petroleum often contain sulfur compounds, and their combustion generates sulfur dioxide. Further oxidation of SO_2, usually in the presence of a catalyst such as NO_2, forms H_2SO_4, and thus acid rain.[2] This is

one of the causes for concern over the environmental impact of the use of these fuels as power sources.

- Nitrogen oxides (NO_x) - Nitrogen oxides, particularly nitrogen dioxide, are expelled from high temperature combustion, and are also produced during thunderstorms by electric discharge. They can be seen as a brown hazedome above or a plume downwind of cities. Nitrogen dioxide is a chemical compound with the formula NO_2. It is one of several nitrogen oxides. One of the most prominent air pollutants, this reddish-brown toxic gas has a characteristic sharp, biting odor.

- Carbon monoxide (CO)- CO is a colourless, odourless, toxic yet non-irritating gas. It is a product by incomplete combustion of fuel such as natural gas, coal or wood. Vehicular exhaust is a major source of carbon monoxide.

- Volatile organic compounds - VOCs are a well-known outdoor air pollutant. They are categorized as either methane (CH_4) or non-methane (NMVOCs). Methane is an extremely efficient greenhouse gas which contributes to enhanced global warming. Other hydrocarbon VOCs are also significant greenhouse gases because of their role in creating ozone and prolonging the life of methane in the atmosphere. This effect varies depending on local air quality. The aromatic NMVOCs benzene, toluene and xylene are suspected carcinogens and may lead to leukemia with prolonged exposure. 1,3-butadiene is another dangerous compound often associated with industrial use.

- Particulates, alternatively referred to as particulate matter (PM), atmospheric particulate matter, or fine particles, are tiny particles of solid or liquid suspended in a gas. In contrast, aerosol refers to combined particles and gas. Some particulates occur naturally, originating from volcanoes, dust storms, forest and grassland fires, living vegetation, and sea spray. Human activities, such as the burning of fossil fuels in vehicles, power plants and various industrial processes also generate significant amounts of aerosols. Averaged worldwide, anthropogenic aerosols—those made by human activities—currently account for approximately 10 percent of our atmosphere. Increased levels of fine particles in the air are linked to health hazards such as heart disease,[3] altered lung function and lung cancer.

- Persistent free radicals connected to airborne fine particles are linked to cardiopulmonary disease.

- Toxic metals, such as lead and mercury, especially their compounds.
- Chlorofluorocarbons (CFCs) - harmful to the ozone layer; emitted from products currently banned from use

These are gases which are released from air conditioners, refrigerators, aerosol sprays, etc. CFC's on being released into the air rises to stratosphere. Here they come in contact with other gases and damage the ozone layer. This allows harmful

ultraviolet rays to reach the earth's surface. This can lead to skin cancer, disease to eye and can even cause damage to plants.

- Ammonia (NH_3) - emitted from agricultural processes. Ammonia is a compound with the formula NH_3. It is normally encountered as a gas with a characteristic pungent odor. Ammonia contributes significantly to the nutritional needs of terrestrial organisms by serving as a precursor to foodstuffs and fertilizers. Ammonia, either directly or indirectly, is also a building block for the synthesis of many pharmaceuticals. Although in wide use, ammonia is both caustic and hazardous. In the atmosphere, ammonia reacts with oxides of nitrogen and sulphur to form secondary particles.
- Radioactive pollutants - produced by nuclear explosions, nuclear events, war explosives, and natural processes such as the radioactive decay of radon.

Secondary pollutants include:

- Particulates created from gaseous primary pollutants and compounds in photochemical smog. Smog is a kind of air pollution. Classic smog results from large amounts of coal burning in an area caused by a mixture of smoke and sulfur dioxide. Modern smog does not usually come from coal but from vehicular and industrial emissions that are acted on in the atmosphere by ultraviolet light from the sun to form secondary pollutants that also combine with the primary emissions to form photochemical smog.
- Ground level ozone (O_3) formed from NO_x and VOCs. Ozone (O_3) is a key constituent of the troposphere. It is also an important constituent of certain regions of the stratosphere commonly known as the Ozone layer. Photochemical and chemical reactions involving it drive many of the chemical processes that occur in the atmosphere by day and by night. At abnormally high concentrations brought about by human activities.

Minor air pollutants include:

- A large number of minor hazardous air pollutants. Some of these are regulated in USA under the Clean Air Act and in Europe under the Air Framework Directive
- A variety of persistent organic pollutants, which can attach to particulates

Persistent organic pollutants (POPs) are organic compounds that are resistant to environmental degradation through chemical, biological, and photolytic processes. Because of this, they have been observed to persist in the environment, to be capable of long-range transport, bioaccumulate in human and animal tissue, biomagnify in food chains, and to have potential significant impacts on human health and the environment.

Text 8

Soil Contamination

Soil contamination or **soil pollution** is caused by the presence of xenobiotic (human-made) chemicals or other alteration in the natural soil environment. It is typically caused by industrial activity, agricultural chemicals, or improper disposal of waste. The most common chemicals involved are petroleum hydrocarbons, polynuclear aromatic hydrocarbons (such as naphthalene and benzo(a)pyrene), solvents, pesticides, lead, and other heavy metals. Contamination is correlated with the degree of industrialization and intensity of chemical usage.

The concern over soil contamination stems primarily from health risks, from direct contact with the contaminated soil, vapors from the contaminants, and from secondary contamination of water supplies within and underlying the soil.[1] Mapping of contaminated soil sites and the resulting cleanup are time consuming and expensive tasks, requiring extensive amounts of geology, hydrology, chemistry, computer modeling skills, and GIS in Environmental Contamination, as well as an appreciation of the history of industrial chemistry.

In North America and Western Europe that the extent of contaminated land is best known, with many of countries in these areas having a legal framework to identify and deal with this environmental problem. Developing countries tend to be less tightly regulated despite some of them having undergone significant industrialization.

Text 9

Health Effects of Soil Pollution

Contaminated or polluted soil directly affects human health through direct contact with soil or via inhalation of soil contaminants which have vaporized; potentially greater threats are posed by the infiltration of soil contamination into groundwater aquifers used for human consumption, sometimes in areas apparently far removed from any apparent source of above ground contamination.

Health consequences from exposure to soil contamination vary greatly depending on pollutant type, pathway of attack and vulnerability of the exposed population. Chronic exposure to chromium, lead and other metals, petroleum, solvents, and many pesticide and herbicide formulations can be carcinogenic, can cause congenital disorders, or can cause other chronic health conditions. Industrial or man-made concentrations of naturally occurring substances, such as nitrate and ammonia associated with livestock manure from agricultural operations, have also been identified as health hazards in soil and groundwater.

Chronic exposure to benzene at sufficient concentrations is known to be associated with higher incidence of leukemia. Mercury and cyclodienes are known to induce higher incidences of kidney damage, some irreversible. PCBs and cyclodienes are linked to liver toxicity. Organophosphates and carbomates can induce a chain of

responses leading to neuromuscular blockage. Many chlorinated solvents induce liver changes, kidney changes and depression of the central nervous system. There is an entire spectrum of further health effects such as headache, nausea, fatigue, eye irritation and skin rash for the above cited and other chemicals. At sufficient dosages a large number of soil contaminants can cause death by exposure via direct contact, inhalation or ingestion of contaminants in groundwater contaminated through soil.

The Scottish Government has commissioned the Institute of Occupational Medicine to undertake a review of methods to assess risk to human health from contaminated land. The overall aim of the project is to work up guidance that should be useful to Scottish Local Authorities in assessing whether sites represent a significant possibility of significant harm (SPOSH) to human health. It is envisaged that the output of the project will be a short document providing high level guidance on health risk assessment with reference to existing published guidance and methodologies that have been identified as being particularly relevant and helpful. The project will examine how policy guidelines have been developed for determining the acceptability of risks to human health and propose an approach for assessing what constitutes unacceptable risk in line with the criteria for SPOSH as defined in the legislation and the Scottish Statutory Guidance.

Text 10

Ecosystem Effects of Soil Pollution

Not unexpectedly, soil contaminants can have significant deleterious consequences for ecosystems. There are radical soil chemistry changes which can arise from the presence of many hazardous chemicals even at low concentration of the contaminant species. These changes can manifest in the alteration of metabolism of endemic microorganisms and arthropods resident in a given soil environment. The result can be virtual eradication of some of the primary food chain, which in turn could have major consequences for consumer species. Even if the chemical effect on lower life forms is small, the lower pyramid levels of the food chain may ingest alien chemicals, which normally become more concentrated for each consuming rung of the food chain. Many of these effects are now well known, such as the concentration of persistent DDT materials for avian consumers, leading to weakening of egg shells, increased chick mortality and potential extinction of species.

Effects occur to agricultural lands which have certain types of soil contamination. Contaminants typically alter plant metabolism, often causing a reduction in crop yields. This has a secondary effect upon soil conservation, since the languishing crops cannot shield the Earth's soil from erosion. Some of these chemical contaminants have long half-lives and in other cases derivative chemicals are formed from decay of primary soil contaminants.

Text 11

Noise Pollution

Noise pollution is the disturbing or excessive noise that may harm the activity or balance of human or animal life. The source of most outdoor noise worldwide is mainly caused by machines and transportation systems, motor vehicles, aircraft, and trains. Outdoor noise is summarized by the word environmental noise. Poor urban planning may give rise to noise pollution, since side-by-side industrial and residential buildings can result in noise pollution in the residential areas.

Indoor noise can be caused by machines, building activities, and music performances, especially in some workplaces. There is no great difference whether noise-induced hearing loss is brought about by outside (e.g. trains) or inside (e.g. music) noise.

High noise levels can contribute to cardiovascular effects in humans, a rise in blood pressure, and an increase in stress and vasoconstriction, and an increased incidence of coronary artery disease. In animals, noise can increase the risk of death by altering predator or prey detection and avoidance, interfere with reproduction and navigation, and contribute to permanent hearing loss.

Human

Noise pollution affects both health and behavior. Unwanted sound (noise) can damage psychological health. Noise pollution can cause trouble, hypertension, high stress levels, tinnitus, hearing loss, sleep disturbances, and other harmful effects. Furthermore, stress and hypertension are the leading causes to health problems.

Sound becomes unwanted when it either interferes with normal activities such as sleeping, conversation, or disrupts or diminishes one's quality of life.

Chronic exposure to noise may cause noise-induced hearing loss. Older males exposed to significant occupational noise demonstrate more significantly reduced hearing sensitivity than their non-exposed peers, though differences in hearing sensitivity decrease with time and the two groups are indistinguishable by age 79. A comparison of Maaban tribesmen, who were insignificantly exposed to transportation or industrial noise, to a typical U.S. population showed that chronic exposure to moderately high levels of environmental noise contributes to hearing loss.

High noise levels can contribute to cardiovascular effects and exposure to moderately high levels during a single eight-hour period causes a statistical rise in blood pressure of five to ten points and an increase in stress,[andvasoconstriction leading to the increased blood pressure noted above, as well as to increased incidence of coronary artery disease.

Noise pollution also is a cause of annoyance. A 2005 study by Spanish researchers found that in urban areas households are willing to pay approximately four Euros per decibel per year for noise reduction.

Wildlife

Noise can have a detrimental effect on wild animals, increasing the risk of death by changing the delicate balance in predator or prey detection and avoidance, and interfering the use of the sounds in communication, especially in relation to reproduction and in navigation. Acoustic overexposure can lead to temporary or permanent loss of hearing.

An impact of noise on wild animal life is the reduction of usable habitat that noisy areas may cause, which in the case of endangered species may be part of the path to extinction. Noise pollution has caused the death of certain species of whales that beached themselves after being exposed to the loud sound of military sonar, (see also Marine mammals and sonar).

Noise also makes species communicate more loudly, which is called Lombard vocal response.[14] Scientists and researchers have conducted experiments that show whales' song length is longer when submarine-detectors are on.[15] If creatures do not "speak" loudly enough, their voice will be masked by anthropogenic sounds. These unheard voices might be warnings, finding of prey, or preparations of net-bubbling. When one species begins speaking more loudly, it will mask other species' voice, causing the whole ecosystem eventually to speak more loudly.

Marine invertebrates, such as crabs (*Carcinus maenas*), have also been shown to be impacted by ship noise.[16][17] Larger crabs were noted to be impacted more by the sounds than smaller crabs. Repeated exposure to the sounds did lead to acclimatization.

European Robins living in urban environments are more likely to sing at night in places with high levels of noise pollution during the day, suggesting that they sing at night because it is quieter, and their message can propagate through the environment more clearly.The same study showed that daytime noise was a stronger predictor of nocturnal singing than night-time light pollution, to which the phenomenon often is attributed.

Zebra finches become less faithful to their partners when exposed to traffic noise. This could alter a population's evolutionary trajectory by selecting traits, sapping resources normally devoted to other activities and thus leading to profound genetic and evolutionary consequences.

Text 12

Ecological Problems

Since ancient times Nature has served Man, being the source of his life. For thousands of years people lived in harmony with environment and it seemed to them that natural riches were unlimited. But with the development of civilization man’s interference in nature began to increase.

Large cities with thousands of smoky industrial enterprises appear all over the world today. The by-products of their activity pollute the air we breathe, the water we drink, the land we grow grain and vegetables on.

Every year world industry pollutes the atmosphere with about 1000 million tons of dust and other harmful substances. Many cities suffer from smog. Vast forests are cut and burn in fire. Their disappearance upsets the oxygen balance. As a result some rare species of animals, birds, fish and plants disappear forever, a number of rivers and lakes dry up.

The pollution of air and the world's ocean, destruction of the ozone layer is the result of man's careless interaction with nature, a sign of the ecological crises.

The most horrible ecological disaster befell Ukraine and its people after the Chernobyl tragedy in April 1986. About 18 percent of the territory of Byelarus were also polluted with radioactive substances. A great damage has been done to the agriculture, forests and people's health. The consequences of this explosion at the atomic power-station are tragic for the Ukrainian, Byelarussian and other nations.

Environmental protection is of a universal concern. That is v/hy serious measures to create a system of ecological security should be taken.

Some progress has been already made in this direction. As many as 159 countries – members of the UNO – have set up environmental protection agencies. Numerous conferences have been held by these agencies to discuss problems facing ecologically poor regions including the Aral Sea, the South Urals, Kuzbass, Donbass, Semipalatinsk and Chernobyl. An international environmental research centre has been set up on Lake Baikal. The international organization Greenpeace is also doing much to preserve the environment.

But these are only the initial steps and they must be carried onward to protect nature, to save life on the planet not only for the sake of the present but also for the future generations.

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